Spatial distribution of feral house mice during a population eruption

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Abstract: Seasonal movements of rodents in agro-ecosystems from refuge habitats to impact habitats could reflect tracking of resources by mice and may be linked to population eruptions. We monitored the abundance of house mice in refuge habitat (fencelines) and impact habitats (crops) at four farms in southeastern Australia using capture-mark-release trappings during a population eruption. For most of the year, mice did not prefer fencelines to the adjacent “sea of grain crops”, but 3 to 4 months post-harvest more mice populated refuge habitats than impact habitats. This preference for refuge habitat coincided with a considerable increase in mouse abundance and the depletion of food in the stubble of the harvested crops. Therefore, habitat choice by mice seems to predominantly track resources such as food and shelter. The percentage of recaptures within months was highest in the crop habitat, indicating higher site fidelity for mice caught there. Mice captured in crop habitats were generally representative of the demographic structure of those mice living along the crop margin. Six months post-harvest, mice living in crops were smaller, and possibly lower-quality emigrants from the fencelines. Foraging movements measured with the fluorescent biomarker Rhodamine B commonly extended about 20-30 m from the fenceline into the crop.

Keywords : agro-ecosystem, capture-mark-release trapping, field study, habitat use, *Mus domesticus*, rodent, spatial dynamics.

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